

IN THE CLAIMS:

1 1 (Currently Amended). A large bandwidth add-drop filter for a planar waveguide
2 device comprising:
3 at least one coupler receiving an input signal and providing an output signal; and
4 at least two grating waveguides **with superstructure and superperiod** having a
5 photonic band-gap covering at least 4 optical channels.

1 2. (Original) An add-drop filter as claimed in claim 1, wherein the photonic band-gap
2 covers at least 8 optical channels.

1 3. (Cancelled) ~~An add-drop filter as claimed in claim 1, wherein the grating~~
2 ~~waveguides have a superstructure grating strength profile.~~

1 4. (Original) An add-drop filter as claimed in claim 1, wherein the grating waveguides
2 have a sampled grating strength profile.

1 5. (Original) An add-drop filter as claimed in claim 1, wherein at least one coupler
2 comprises a directional coupler.

1 6. (Original) An add-drop filter as claimed in claim 1, wherein at least one coupler
2 comprises multi-mode interference waveguides.

1 7. (Original) An add-drop filter as claimed in claim 1, wherein at least one coupler
2 comprises diffracting slab waveguides.

1 8. (Currently Amended) An add-drop filter as claimed in claim 1, wherein at least one
2 coupler comprises diffracting slab waveguides. ~~An add-drop filter as claimed in claim 1,~~
3 ~~wherein one or more grating arms comprises delay line waveguides.~~

1 9. (Original) An add-drop filter as claimed in claim 1, further comprising two
2 couplers, in which a first coupler provides an input port and a drop port and a second coupler
3 provides an add port and a transmission port.

1 10 (Currently Amended). An add-drop filter as claimed in claim 1, wherein ~~the grating~~
2 ~~waveguides have~~ said superstructure ~~grating strength profiles providing~~ provides spectrally
3 periodic transmission bands aligned with optical channels.

1 11. (Currently Amended) An add-drop filter as claimed in claim ~~9~~ 1, wherein ~~the~~ said
2 superstructure has one or multiple superperiods.

1 12. (Original) An add-drop filter as claimed in claim 1, wherein the grating
2 waveguides have sampled grating strength profiles providing a window transmission function,
3 covering a band of optical channels.

1 13. (Original) An add-drop filter as claimed in claim 1, wherein the grating
2 waveguides have sampled grating strength profiles providing two or more window functions,
3 each covering bands of optical channels.

1 14. (Original) An add-drop filter as claimed in claim 1 further comprising a grating
2 tuner for changing a group velocity of one or more of the grating waveguides.

1 15. (Currently Amended) An add-drop filter as claimed in claim ~~13~~ **14**, wherein the
2 grating tuner heats at least one of the grating waveguides.

1 16. (Cancelled) ~~A filter for a planar waveguide device comprising:~~
2 ~~at least one coupler receiving an input signal and providing an output signal; and~~
3 ~~at least two grating waveguides having a grating strength of higher than about~~
4 ~~$\kappa = 0.006 \mu\text{m}^{-1}$.~~

1 17. (Cancelled) ~~A filter for a planar waveguide device comprising:~~
2 ~~at least one coupler receiving an input signal and providing an output signal; and~~
3 ~~at least two grating waveguides having a grating strength of higher than about~~
4 ~~$\kappa = 0.013 \mu\text{m}^{-1}$.~~

1 18. (Newly added) An add-drop filter as claimed in claim 1, wherein one or more
2 grating arms comprises delay-line waveguides.